

REMARKS

This application has been carefully reviewed in light of the Office Action dated May 14, 2003 (Paper No. 9). Claims 1 to 34 are in the application, with Claims 35 to 45 having been canceled without prejudice or disclaimer of the subject matter contained therein. Claims 6 to 8, 11, 12, 14, 15, 22 to 25, 31, 32 and 34 have been withdrawn from consideration. Claims 1 and 33 are the independent claims currently under consideration. Reconsideration and further examination are respectfully requested.

Claims 1 to 5 and 9 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,880,653 (Yamada); Claims 10, 13, 16 and 33 were rejected under § 103(a) over Yamada in view of U.S. Patent No. 4,553,118 (Agatahama); Claims 17 and 26 to 30 were rejected under § 103(a) over Yamada in view of U.S. Patent No. 6,541,831 (Lee); and Claims 18 to 21 were rejected under § 103(a) over Yamada. Applicants have considered the Examiner's comments together with the applied references and respectfully submit that the claims considered herein are patentably distinguishable over the applied references for at least the following reasons.

Independent Claim 1 concerns a movable body apparatus that includes a first support member and a movable body. Elastic supporting means, having a twisting longitudinal axis, supports the movable body flexibly and rotatably about the twisting longitudinal axis relative to the first support member. Driving means tilts the movable body in a tilting direction about the twisting longitudinal axis, where the driving means includes a stationary portion provided apart from the movable body and a moving core formed of a magnetic material provided on a portion of the movable body. The stationary

portion and the moving core have faces opposed to each other in a direction perpendicular to the tilting direction. A superimposed area exists between a part of the face of the stationary portion and a part of the face of the moving core, where a size of the superimposed area is changed when the movable body is tilted.

Independent Claim 33 concerns a movable-body apparatus that includes a support member and a movable body. Elastic supporting means, having a twisting longitudinal axis, supports the movable body flexibly and rotatably about the twisting longitudinal axis relative to the support member. Driving means tilts the movable body in a tilting direction about the twisting longitudinal axis, where the driving means includes a stationary core formed of a soft magnetic material with a coil wound on the stationary core and provided apart from the movable body and a moving core formed of a magnetic material provided on a portion of the movable body. The moving core and the stationary core have faces opposed to each other in an approximately parallel relationship with a spacing being interposed between them, with the faces being shifted from each other in a direction perpendicular to the tilting direction. The faces are arranged such that a superimposing area between the faces viewed from a direction perpendicular to the faces can be changed as the movable body is tilted.

The applied references are not understood to disclose or suggest the foregoing features of the present invention. In particular, the applied references are not understood to disclose or suggest at least the feature of a superimposed area existing between opposing faces of a stationary portion and a moving core formed of a magnetic material on a movable body, where the faces are opposed to each other in a direction

perpendicular to a tilting direction of the movable body and where a size of the superimposed area is changed when the movable body is tilted.

Yamada concerns an electromagnetic relay in which the ends of an armature alternately contact and separate from pole faces of a core. The Office Action has contended that the armature and the core of Yamada correspond with the moving core and the stationary portion, respectively, of the present invention. Even if this characterization was correct, which Applicants do not concede, the arrangement and operation of the armature and core of Yamada differs from the arrangement and operation of the present invention.

The Office Action contended that the armature described in Yamada has at least one face that opposes at least one face of the core. While the ends 41a and 41b of the armature do appear to oppose pole faces 11a and 11b of the core, as shown in Figures 1 and 3 of Yamada, the ends 41a and 41b are understood to oppose pole faces 11a and 11b in the direction in which the armature moves. In contrast, the faces of the stationary portion and the moving core of the present invention oppose each other in a direction perpendicular to the tilting direction of the movable body. Furthermore, any superimposed area that might exist between the ends of the armature and the pole faces in Yamada is understood to remain the same size as the armature moves since the armature is understood to move in a direction perpendicular to the pole faces. The present invention, on the other hand, changes the size of the superimposed area between the faces of the stationary portion and the moving core as the movable body is tilted.

Agatahama is not understood to disclose or suggest anything to remedy the foregoing deficiencies of Yamada. Agatahama concerns a polarized magnetic device in which an armature moves between a yoke and a core. However, the armature in Agatahama is not understood to have a face opposing a face of either the yoke or the core in a direction perpendicular to the direction in which the armature moves. Additionally, any superimposed area between the armature and either the yoke or the core is not understood to change in size as the armature moves.

Therefore, Yamada and Agatahama, either alone or in combination, are not understood to disclose or suggest at least the feature of a superimposed area existing between opposing faces of a stationary portion and a moving core formed of a magnetic material on a movable body, where the faces are opposed to each other in a direction perpendicular to a tilting direction of the movable body and where a size of the superimposed area is changed when the movable body is tilted.

Lee, which was applied in the rejection of certain dependent claims for its teaching of supporting a micromirror on an actuator structure is not understood to disclose or suggest anything to remedy the deficiencies of Yamada and Agatahama. Specifically, Lee concerns an electromechanical device in which a micromirror is moved by producing an electrostatic field between adjacent fingers of the actuator structure. See column 7, lines 12 to 19. However, Lee is not understood to disclose or suggest at least the feature of a superimposed area existing between opposing faces of a stationary portion and a moving core formed of a magnetic material on a movable body, where the faces are opposed to each other in a direction perpendicular to a tilting direction of the movable body and where a size of the superimposed area is changed when the movable body is tilted.

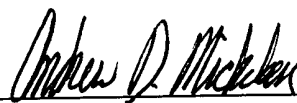
Accordingly, independent Claims 1 and 33 are believed to be allowable over the applied references. Reconsideration and withdrawal of the § 102(b) rejection of Claim 1 and the § 103(a) rejection of Claim 33 are respectfully requested.

The other claims currently under consideration are dependent from Claim 1 discussed above and therefore are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, the claims currently under consideration are believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California, office by telephone at (714) 540-8700. All correspondence should be directed to our address given below.

Respectfully submitted,



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